**County of Loudoun**

**Department of Planning**

**MEMORANDUM**

**# 5**

**DATE:** January 25, 2010

**TO:** BOS Transportation/Land Use Committee

**FROM:** Jane McCarter, Project Manager
Land Use Review Division

**SUBJECT:** **January 25, 2010 Transportation/Land Use Committee Meeting: CMPT 2009-0003; SPEX 2009-0004; SPEX 2009-0015 Scott Jenkins Memorial Park**

## RECOMMENDATIONS

Planning Commission

On December 10, 2009 the Planning Commission recommended approval of the Commission Permit for the park site and Special Exception for the Commuter Park and Ride Lot applications by a vote of 8-0-1 (Broderick absent) with the Findings outlined in the Staff Report and subject to the conditions of approval.

Subsequent to lengthy and detailed discussion and proposed revisions to the conditions of approval, the Planning Commission by a vote of 7-0-1-1 (Klancher opposed; Broderick absent) offered no recommendation for the Special Exception Active Recreation Park.

Staff

The applications are consistent with the comprehensive plan policies and Staff supports approval of each application with the Findings outlined in the Staff Report and subject to the conditions of approval as presented to and discussed by the Planning Commission. The draft Conditions of Approval included in *Attachment 2* are under review with the County Attorney. The Applicant is in agreement with the conditions of approval for the SPEX 2009-0004 (Active Recreation Park) in *Attachment 2* subject to County Attorney final review.

## BACKGROUND

The Board of Supervisors held a Public Hearing on this item on January 11, 2010. There were twenty- four persons from the public who spoke regarding the applications. Speakers were equally supportive and opposed to lighting of the ballfields citing impacts to residents, the greenhouse business, and the need for lighted ballfields in western Loudoun and support for the sports community. Other concerns included transportation access to business Route 7 and bus impacts to the flow of traffic, vegetative buffering to adjacent residential properties, and noise impacts to surrounding residential properties. Board members asked questions and expressed comments and issues, their questions and comments are listed in the issues summary that follows.

The Board concluded the hearing by voting 9-0 to forward the applications to a Transportation and Land Use Committee to discuss the issues further.

**Staff requests that Board members bring the staff report and plat for this item from the January 11, 2010 Public Hearing to the Committee meeting.**

## ISSUE SUMMARY

A summary and discussion of outstanding issues is provided below.

| ISSUE | DESCRIPTION |
|---|---|
| Transportation | Potential safety concerns to community with bus routing through Route 704 rather than east to the Routes 7/9 intersection. |
| Ballfield Lighting | Details of light measurements at Broad Run High School, light impacts to poinsettia production; lights on until 11:00 PM; 6 months light testing required in condition of approval; cost estimates of lighting ballfields. |
| Alternative Locations for Lighted Fields | Discussion of Lovettsville, Fields Farm and Franklin Park locations. |
| Vegetative Buffering | Buffering to the south and west of the site to limit the lighting impacts to residential areas, to the north to buffer greenhouse business and adjacent residences. |
| Noise | Mitigate noise impacts to the adjacent residential areas. |
| Draft Conditions of Approval Review | Conditions under review with the County Attorney's Office. Staff will update the Board at the meeting. |

**Transportation**

There are transportation concerns associated with the proposed routing of the buses to the Route 704 access that would pass adjacent to the Hamilton Estates community and the rural residential communities on Route 704. The Applicant acknowledges routing the buses to access through the Routes 7/9 intersection would eliminate this impact, but add to the timing of the bus routes and would direct buses to this busy intersection at the most heavily traveled time of day.

**Lighting**

The Plan promotes the use of lighting for public safety and visibility without the nuisance associated with light pollution (Revised General Plan, Chapter 5, Lighting and Night Sky Policies, Policy 1a, p. 5-42). Of particular concern in this location is the proximity of lighted ballfields to an existing rural economy use of the Ellmore Greenhouses, approximately 500 feet away and the adjacent residential communities with the nearest home located 350' away. The Applicant included an updated illumination summary on pages A-112 and A-113 of the January 11, 2010 Public Hearing Sstaff Report depicting the light intensities around the athletic fields and showing the decrease in light intensity along the property's perimeter, which is in compliance with County standards.

Staff has developed conditions of approval designed for effective nighttime use of the facility, minimization of off-site glare and protection of the of the natural nighttime environment in accordance with the Revised General Plan to provide assurances that once the proposed lighting is installed and operational it complies with County standards. To mitigate the impacts of light intrusion associated with the ballfield lighting structures and to ensure the continued viability of successful poinsettia production, the Applicant has agreed to a number of conditions of approval which include

eliminating all ballfield lighting during the August through December timeframe, unless testing shows that the ballfield lighting does not create an impact on the neighboring property.

The testing process under consideration is an automated measuring site providing continual readings of the ambient light and that generated by the proposed Musco lighting fixtures. A six month testing cycle would demonstrate the lightspill impacts between the ballfields and the nearest property line of the greenhouse business. The conditions of approval allow for evaluation and review of this data collection by the Zoning Administrator. Subsequently, if the light testing demonstrates no additional impacts from the ballfield lights, the condition of approval allows for full year ballfield lighting.

Staff continues research regarding the independent testing of the light impacts and will provide the Committee with an update on this matter at the meeting.

The Applicant has provided additional information as requested by the Board of Supervisors inclusive of the cost estimate in *Attachment 6* for light installation on this site.

**Alternative Locations for Lighted Fields**
The Board discussed installing lights at the Lovettsville, Fields Farm, and Franklin Park locations as alternative locations that would permit full year lighted ballfield use. The Board also requested the Department of Parks, Recreation and Community Service bring the Lovettsville Park plans to the TLUC committee for further discussion.

**Vegetative Buffering**
The Applicant has agreed to enhanced buffering, and additional row of evergreens along the south and west boundaries of the property, to the existing vegetation and the Type 2 buffering required by ordinance. This enhanced buffering is located adjacent to the existing residential uses. The intent of the vegetation is to soften the impacts, and Staff acknowledges the buffering will not fully shield the residences from the 80' tall lights. However, the glare impacts of the lights are significantly reduced with the Musco Green Generation Lights in this design. The light spill of the same lights measured at Broad Run High School was 0.00 footcandles at 300 feet. The nearest home is 350 feet away with anticipated light spill at that location to be 0.00 footcandles.

**Noise**
Staff notes that the nearest residence is located approximately 350 feet to the west of the proposed ballfields and that potential noise impact may exist, particularly if amplified sound is employed to announce games. As the 1993 Loudoun County Zoning Ordinance limits noise exposure to 55 dB at the property line for these parcels, corrective measures will be required should the noise levels in the future exceed these standards. Alternatively the Board may choose to condition the active recreation use to prohibit amplified sound.

**Conditions of Approval Review**
The December 30, 2009 conditions of approval are provided as *Attachment 2*. Staff continues work to clarify an acceptable and efficient light testing process and mechanism for the 6 months testing period. Conditions are currently under review with the County Attorney's Office. Staff will update the Committee at the meeting.

## SUGGESTED MOTIONS

1. I move that the Transportation and Land Use Committee forward CMPT 2009-0003; SPEX 2009-0004; SPEX 2009-0015, Scott Jenkins Memorial Park, to a future Transportation and Land Use Committee Meeting for further review and discussion.

OR,

2. I move that the Transportation and Land Use Committee forward CMPT 2009-0003; SPEX 2009-0004; SPEX 2009-0015, Scott Jenkins Memorial Park, to the February 17, 2010 Board Business Meeting for action.

OR,

3. I move an alternate motion.

## ATTACHMENTS

1. Site Vicinity Map.
2. Draft Conditions of Approval dated December 30, 2009.
3. Findings for Approval.
4. Moonlight impacts on plants – Virginia Cooperative Extension Service
5. Route 7 light impacts - Virginia Cooperative Extension Service and Ellmore Greenhouses
6. Applicant Information as requested by the Board of Supervisors.

## VICINITY MAP


**Directions:** From Leesburg, proceed west on Harry Byrd Highway (Route 7) approximately 3.2 miles to the intersection with Charles Town Pike (Route 9) on the right. Exit Route 7, turn left to cross the overpass, and then turn right onto Colonial Highway East (East Colonial Highway (Business Route 7)). Proceed to the right (west) approximately 1.5 miles to the entrance to the property on the right. The entrance is identified with a sign and is located at a locked gate crossing the abandoned roadway internal to the site.

**ATTACHMENT 1**

**SPEX 2009-0004: Active Recreational Park** **12/30/09**

1. **Substantial Conformance** The property shall be developed in substantial conformance with the special exception plat prepared by Patton Harris Rust and Associates dated February 2009 and revised through September 28, 2009. Approval of this application does not relieve the Applicant of any Zoning Ordinance, Codified Ordinance, or any other requirement.

2. **Enhanced Buffering** The special exception use shall provide enhanced vegetative buffering along the western and southern boundaries of the parcel which abut residential uses. The purpose of this enhanced buffering is to minimize the lighting and noise impacts to the adjacent properties. The buffering shall be a minimum of one row of 6 foot tall evergreens spaced 15 feet apart in addition to the Type 2 side yard and Type 3 front yard buffers required for the western and southern yards respectively. However, spacing for the enhanced buffer plantings may be altered to accommodate the interspersion among existing trees. Planting choices may include any native species the Loudoun County Urban Forester in coordination with the Loudoun County Horticulturist deems appropriate to satisfy this purpose. The enhanced buffering shall be maintained to assure viability of the plantings, and replace any diseased or dying vegetation.

3. **Tree Conservation Areas** The special exception use shall ensure sustainability of the tree conservation areas, identified as TCA areas on the Special Exception plat and inclusive of, at minimum, the "Moon Tree" (10 inch sweet gum) labeled "Individual Tree to be Preserved in situ" on the plat and the large pin oak at the northwestern corner of the site near the Existing Irrigation Well A. Removal of tree conservation areas will be permitted only if recommended by a certified arborist. Maintenance of the tree conservation areas shall be actively provided by the Applicant in conformance with Virginia Forestry guidelines.

4. **Moon Tree** To ensure sustainability of the unique "Moon Tree" the area shall be specified on the plat as an "Individual Tree to be Preserved in situ". To ensure preservation onsite there shall be:

    a. No future site alteration or land disturbance within 30 feet of the tree in accordance with Section 7.303 of the Facilities Standards Manual addressing critical root zone preservation with the exception of the retaining wall area. No land disturbance shall occur within 24 feet of the tree in the retaining wall construction area;

    b. A plaque explaining the tree's significance and history;

    c. 4 foot welded wire tree protection fence during construction with "Tree Protection" signage in English and Spanish spaced no more than 30 feet apart all the way around the tree protection fence;

5. **Lighting** The Applicant shall conduct light meter readings upon the completion of the construction/installation of each lighted ball field to ensure that light spillage from the park and ambient light does not exceed 0.09 foot-candles at the nearest property line of PIN #346-45-2753.

**ATTACHMENT 2**

The ballfield lights shall not be illuminated between August 1 and December 20 until the County has a light study demonstrating a minimum of six months of daily monitored field lighting showing no more than 0.09 foot-candles at the nearest property line of PIN #346-45-2753. The monitoring shall include readings during heavily overcast and other similar weather conditions to ensure worst case light reflectance has been measured

*a.* If readings are found to be above 0.09 foot-candles for any single field or combination of fields then lights shall not be illuminated from August 1 thru December 20. If subsequent modifications are made to reduce readings to the 0.09 threshold, then the lights shall be monitored for the six-month period described above following the modifications. .

*b.* All ballfield lighting shall be controlled by PRCS staff. When permitted, ballfield lights shall not be illuminated past 11 P.M. The playing field light fixtures shall be energized only during periods of scheduled and permitted use and shall be extinguished within 15 minutes of the end of the organized sporting event, in accordance with current PRCS procedure.

*c.* All exterior light fixtures shall be "full cut-off outdoor lighting fixtures" as defined by the Illuminating Engineering Society of North America (IESNA). Light will be directed inward and downward toward the interior of the Property, away from the public streets and the nearby residential properties. Lighting shall incorporate non-glare bulbs and fixtures.

d. Year round use of the lights shall be permitted only when the light study readings required above have been submitted and approved by the Zoning Administrator. If readings from the light study are found to be above 0.09 foot-candles for any single field or combination of fields then lights shall not be illuminated from August 1 thru December 20.

6. **Hydrogeologic Assessment** Completion of a hydrogeologic assessment shall occur prior to the construction of the irrigation system for the Phase 2 ballfields to ensure adequate water supplies in this limited water supply area. Provision of this assessment shall occur prior to building/zoning permit issuance for any part of Phase 2 which requires an irrigation system.

7. **Water Conserving Measures – Facilities** The Applicant shall install low flow fixtures and waterless urinals in all restrooms. Alternative comparable equivalent performing technologies that support water conservation may be provided.

8. **Water Conserving Measures- Site** The Applicant shall install infiltration measures within the Active Recreation Park portion of the park to provide water infiltration onsite. Construction of grass swales, infiltration ditches, infiltration trenches or other methods to carry water for infiltration shall be provided. Curb and gutter shall not be provided throughout the site.

# ATTACHMENT 2

9. **Roadways** Left and right turn lanes at the entrance to the park on East Colonial Highway shall be constructed prior to the opening of any portion of Phase 1 of the Active Recreation Park or Commuter Park and Ride Parking Lot. The turn lanes shall be constructed in accordance with Loudoun County and VDOT standards.

10. **Signage** Appropriate Signage shall be installed to prohibit all eastbound left turn lanes into the bus entrance and to prohibit non-authorized vehicles from accessing the site. All-way control (stop signs) shall be installed, pending VDOT approval, at the intersection of East Colonial Highway/Dry Mill Road and Charles Town Pike prior to the opening of Phase 1 of the project.

11. **Fair Share Contribution** The Applicant shall provide a pro rata contribution of $130,000 toward future intersection improvements at the East Colonial Highway/ Hamilton Station Road intersection prior to the opening of Phase 2 of the park.

12. **Trail Phasing** The Applicant shall construct Phase 1 of the regional trail along the frontage of the property adjacent to East Colonial Highway for that portion of the property extending from the western boundary east to the eastern end of the shared use commuter parking lot prior to the opening of Phase 1. Phase 2 of the trail construction from the eastern end of the shared use commuter parking lot to the eastern parcel boundary shall occur at a future time when the availability to connect to the Washington and Old Dominion Trail or any other regional trail between the eastern parcel boundary and the Washington and Old Dominion Trail to the east has been secured.

13. **Offsite Trail** Trail extension offsite to the east to connect with the W&OD trail, and to the west to connect with the sidewalks at the Town of Hamilton, shall be provided prior to completion of Phase 2 of the development of this site. Should the Board of Supervisors by resolution choose not to fund the trail connection then this condition will be null and void.

14. **Noise** Noise levels emanating from a public address system shall not exceed 55dB at the nearest property line. Amplified sound shall not be used other than for sporting events within the park ballfields.

15. **Phasing of Site Construction** Phase 1 of the site shall encompass one 90 foot baseball field; 60 parking spaces; the Commuter Park and Ride Parking Lot; access and bus turn around; one restroom facility; and Phase 1 trail portion. All remaining facilities, parking, ballfields, and trails shall be provided with Phase 2 construction.

**ATTACHMENT 2**

**SPEX 2009-0015: Commuter Park and Ride Parking Lot 12/30/09**

1. **Substantial Conformance** The property shall be developed in substantial conformance with the special exception plat prepared by Patton Harris Rust and Associates dated February 2009 and revised through September 28, 2009. Approval of this application does not relieve the Applicant of any Zoning Ordinance, Codified Ordinance, or any other requirement.

2. **Enhanced Buffering** The special exception use shall provide enhanced vegetative buffering along the western and southern boundaries of the parcel which abut residential uses. The purpose of this enhanced buffering is to minimize the lighting and noise impacts to the adjacent properties. The buffering shall be a minimum of one row of 6 foot tall evergreens spaced 15 feet apart in addition to the Type 2 side yard and Type 3 front yard buffers required for the western and southern yards respectively. However, spacing for the enhanced buffer plantings may be altered to accommodate the interspersion among existing trees. Planting choices may include any native species the Loudoun County Urban Forester in coordination with the Loudoun County Horticulturist deems appropriate to satisfy this purpose. The enhanced buffering shall be maintained to assure viability of the plantings, and replace any diseased or dying vegetation.

3. **Tree Conservation Areas** The special exception use shall ensure sustainability of the tree conservation areas, identified as TCA areas on the Special Exception plat and inclusive of, at minimum, the "Moon Tree" (10 inch sweet gum) labeled "Individual Tree to be Preserved in situ" on the plat and the large pin oak at the northwestern corner of the site near the Existing Irrigation Well A. Removal of tree conservation areas will be permitted only if recommended by a certified arborist. Maintenance of the tree conservation areas shall be actively provided by the Applicant in conformance with Virginia Forestry guidelines.

4. **Moon Tree** To ensure sustainability of the unique "Moon Tree" the area shall be specified on the plat as an "Individual Tree to be Preserved in situ". To ensure preservation onsite there shall be:

    a. No future site alteration or land disturbance within 30 feet of the tree in accordance with Section 7.303 of the Facilities Standards Manual addressing critical root zone preservation with the exception of the retaining wall area. No land disturbance shall occur within 24 feet of the tree in the retaining wall construction area;

    b. A plaque explaining the tree's significance and history;

    c. 4 foot welded wire tree protection fence during construction with "Tree Protection" signage in English and Spanish spaced no more than 30 feet apart all the way around the tree protection fence;

**ATTACHMENT 2**

5. **Lighting** Lighting for the Commuter Park and Ride Facility shall be designed and constructed to minimize light trespass and the view of lighting from off-site, specifically:

    a. Parking lot lighting shall be cut-off or powered down during nighttime hours after commuter usage.

    b. For all parking lot lighting, there shall be a maximum average illumination over the parking lot of two (2) foot-candles, and the maximum illumination at the property line shall be no more than 0.025 footcandles above the ambient light in existence prior to the development of the park and ride lot.

    c. All exterior light fixtures shall be "full cut-off outdoor lighting fixtures" as defined by the Illuminating Engineering Society of North America (IESNA). Light will be directed inward and downward toward the interior of the Property, away from the public streets and the nearby residential properties. Lighting shall incorporate non-glare bulbs and fixtures.

    d. The mounting height of any freestanding exterior lighting fixtures shall not exceed 20 feet. Height shall be measured from the ground surface to the bottom of the lighting fixture.

6. **Water Conserving Measures – Facilities** The Applicant shall install low flow fixtures and waterless urinals in all restrooms. Alternative comparable equivalent performing technologies that support water conservation may be provided.

7. **Water Conserving Measures- Site** The Applicant shall install infiltration measures within the Active Recreation Park portion of the park to provide water infiltration onsite. Construction of grass swales, infiltration ditches, infiltration trenches or other methods to carry water for infiltration shall be provided. Curb and gutter shall not be provided throughout the site.

8. **Roadways** Left and right turn lanes at the entrance to the park on East Colonial Highway shall be constructed prior to the opening of any portion of Phase 1 of the Active Recreation Park or Commuter Park and Ride Parking Lot. The turn lanes shall be constructed in accordance with Loudoun County and VDOT standards.

9. **Signage** Appropriate Signage shall be installed to prohibit all eastbound left turn lanes into the bus entrance and to prohibit non-authorized vehicles from accessing the site. All-way control (stop signs) shall be installed, pending VDOT approval, at the intersection of East Colonial Highway/Dry Mill Road and Charles Town Pike prior to the opening of Phase 1 of the project.

# ATTACHMENT 2

10. **Fair Share Contribution** The Applicant shall provide a pro rata contribution of $130,000 toward future intersection improvements at the East Colonial Highway/ Hamilton Station Road intersection prior to the opening of Phase 2 of the park.

11. **Trail Phasing** The Applicant shall construct Phase 1 of the regional trail along the frontage of the property adjacent to East Colonial Highway for that portion of the property extending from the western boundary east to the eastern end of the shared use commuter parking lot prior to the opening of Phase 1. Phase 2 of the trail construction from the eastern end of the shared use commuter parking lot to the eastern parcel boundary shall occur at a future time when the availability to connect to the Washington and Old Dominion Trail or any other regional trail between the eastern parcel boundary and the Washington and Old Dominion Trail to the east has been secured.

12. **Offsite Trail** Trail extension offsite to the east to connect with the W&OD trail, and to the west to connect with the sidewalks at the Town of Hamilton, shall be provided prior to completion of Phase 2 of the development of this site. Should the Board of Supervisors by resolution choose not to fund the trail connection then this condition will be null and void.

13. **Phasing of Site Construction** Phase 1 of the site shall encompass one 90 foot baseball field; 60 parking spaces; the Commuter Park and Ride Parking Lot; access and bus turn around; one restroom facility; and Phase 1 trail portion. All remaining facilities, parking, ballfields, and trails shall be provided with Phase 2 construction.

**ATTACHMENT 2**

## FINDINGS FOR APPROVAL

**Commission Permit:**

1. The proposed active recreation park and commuter park and ride facility is consistent with land use and location policies of the Revised General Plan that promote the co-location of County facilities, specifically community meeting spaces, shared parking, and athletic fields, where feasible to function as multi-purpose community facilities. The Plan calls for these multi-purpose community facilities to be developed with an integrated design which incorporate a variety of uses on a single site.

**Special Exception – Commuter Park and Ride Lot:**

1. The proposed commuter park and ride lot, as conditioned, is consistent with the Revised General Plan policies that encourage civic uses near towns and villages.
2. The proposed commuter park and ride facility will provide effective buffering to neighboring properties with landscaped screening of the parking.
3. Impacts of the proposed facilities on surrounding properties, both residential and businesses, transportation network, and the environment have been mitigated through conditions of approval.
4. The proposed facilities will provide a much needed civic asset and the general location and use of the subject property as a commuter park and ride lot is consistent with the Revised General Plan.
5. Subject to the conditions of approval, the proposal complies with the applicable requirements of the Revised 1993 Zoning Ordinance.

**Special Exception – Active Recreation Park:**

1. The proposed active recreational park and park, as conditioned, is consistent with the Revised General Plan policies that encourage recreational uses near towns and villages.
2. The proposed active recreation park facility will provide effective buffering to neighboring properties with landscaped screening of the parking and ballfields areas, restrictions on the use of ballfield lighting and amplified sound on-site to reduce noise, and limited hours of operation.
3. Impacts of the proposed facilities on surrounding properties, both residential and businesses, transportation network, and the environment have been mitigated through conditions of approval.
4. The proposed facilities will provide a much needed recreational asset and the general location and use of the subject property as a public park is consistent with the Revised General Plan.
5. Subject to the conditions of approval, the proposal complies with the applicable requirements of the Revised 1993 Zoning Ordinance.

**ATTACHMENT 3**

## MOONLIGHT IMPACTS ON PLANT FLOWERING:

Plants cannot detect moonlight. Why?

Phytochrome is the pigment in plants that absorbs wavelengths of light between 660nm (red light) and 730nm (far red light). Phtyochrome is the responsive part of the plant that allows for the dark requirement - it absorbs the light that interrupts flowering in poinsettias. Therefore red and far red light are the responsible wavelengths for flower interruption. A portion of those wavelengths emitted from the sun are dispersed by the earth's atmosphere. The edges especially of the light spectrum, UV and infrared (part of the far red light) are dispersed as they enter the atmosphere. Moonlight is not direct sunlight, it is reflected light from the surface of the moon that must past through the atmosphere of the earth. The moon reflects only about 7% of the light that hits it (similar to a lump of coal). Because the moon is a poor reflector, and the earth's atmosphere screens a good deal of the light spectrum, there is simply not enough of the right kind of light for poinsettias to be affected by moonlight.

Texas A&M General Horticulture Lecture: The Properties of Light (Check pg. 57 – Effects of Light Quality on Plants)
http://generalhorticulture.tamu.edu/lectsupl/Light/light.html

Another important aspect of this for non growers to understand is that it does not take prolonged light. A short burst of light will equally interrupt the flowering of the plant. So you could have 8 hours of darkness, someone turn on a flash light in the greenhouse for a minute, and then at least 4 more hours of darkness and that will delay flowering.

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# ATTACHMENT 4

## ROUTE 7 CAR LIGHTING IMPACTS

Dear Board of Supervisors,

We were very diligent in choosing this location spending countless hours during the evening checking for any light that would affect our crops especially poinsettias to ensure there would not be ambient light in or around the greenhouses even from the Route 7 by-pass as the cars are going west and that part of Route 7 sets in a corridor and vehicles are located well below the greenhouses and do not provide any light spillage. Before the Planning Commission work session Commissioners Maio, Ruedisueli and Project Manager Jane McCarter visited the greenhouses in the evening and witnessed there is no ambient light in or around our greenhouses.

Thank you,

Barbara Ellmore
Ellmore's Garden Center

There was a question about the traffic on Rt. 7. You may want to mention that because the vehicles are located well below your greenhouse and Rt. 7 sits in corridor, you do not get light spillage.

**Leslie A. Blischak**
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# ATTACHMENT 5

**Patton Harris Rust & Associates**
Engineers. Surveyors. Planners. Landscape Architects.

PHR+A

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# Memorandum

| | |
|---|---|
| **To:** | Matt Kitchen |
| **Organization/Company:** | Department of Construction and Waste Management |
| **From:** | Mark Thomas |
| **Date:** | January 18, 2010 |
| **Project Name/Subject:** | Scott Jenkins Memorial Park |
| **PHR+A Project file Number:** | 13608-2-0 |
| **cc:** | Mark Novak, Diane Ryburn, Steve Torpy |

RECEIVED
JAN 19 2010
LOUDOUN COUNTY
DEPARTMENT OF PLANNING

**BOS TLUC additional information**

**Comments and Questions from BOS in Monday January 4th briefing-**

1. **The price of the ballfield lights including purchase price & debt service [they were looking for total cost and may also want installation cost]**

   - Total cost for lights for all 5 fields would be approximately $700,000 which includes $70,000 for the transformer and bringing power to the site. $630,000 is broken down as follows: $215,000 for 1 large diamond field, $285,000 for three small diamond fields ($95,000 each), $130,000 for 1 large rectangle fields. These estimated costs were provided by a Musco Lighting representative in November of 2009.
   - Total cost for Phase 1 lighting (1 large diamond field) would be $300,000 (field plus power)
   - Future phases would cost approximately $400,000 (four remaining fields)

**What is the cost per use?**

- Total installation of all 5 fields is estimated to be **$700,000**
- The estimated life of the lights is 25 years (per Musco)
- If lights are only utilized in the spring only, the cost is as follows for all fields at build out: 375 hours per season X 25 years = 9,375 hours of springtime illumination. $700,000 divided by 9,375 = approximately $75 per hour of use.
- If lights are utilized year round, both spring and fall seasons, the cost is as follows for all fields at build out: 1,450 hours per year X 25 years = 36,250 hours of annual illumination. $700,000 divided by 36,250 = approximately $19 per hour of use.
- For Phase 1 (one large diamond field) in spring only, the cost is as follows: 75 hours per season X 25 years = 1,875 hours of illumination. $285,000 ($215,000 for lights and $70,000 for power) divided by 1,875 = approximately $152 per hour of use
- For Phase 1 (one large diamond field) year round, both spring and fall seasons, the cost is as follows: 290 hours per year X 25 years = 7,250 of annual illumination. $285,000 divided by 7,250 = approximately $39 per hour of use.

2. **The number of people who benefit from night games (lighting all 5 fields)**

- At total build out, there would be approximately **12,600** users (some could be duplicate) for the time when the lights will be used
- Adding lights on all five fields adds approximately **700** additional game/practice slots per year
- Estimating ½ of these slots would be used for practice (12 players for one team) and ½ of these slots would be used for games (24 players for two teams), you would get the **12,600**
- For Phase 1, (1 field), the number would be approximately **2,520** players using the field during the times the field is lighted
- Total number of children participating in Western Loudoun Affiliated leagues is **8,061 annually** with an additional **600 children playing** on independent teams who potentially would be taking advantage of this park on a regular basis. The breakdown for this number is as follows for FY09:

| League | Spring | Summer | Fall | Total |
|---|---|---|---|---|
| Upper Loudoun Youth Football | | | 695 | 695 |
| Upper Loudoun Youth Cheerleading | | | 140 | 140 |
| Loudoun Soccer | 2000 | | 2000 | 4000 |
| Western Loudoun Rugby League | 20 | 20 | 40 | |
| Upper Loudoun Little League | 870 | | 282 | 1152 |
| Greater Loudoun Babe Ruth | 270 | | 149 | 419 |
| Upper Loudoun Girls Softball | 300 | | 215 | 515 |
| Loudoun Girls Little League Softball | 425 | | 175 | 600 |
| Western Loudoun Lacrosse | 250 | | 250 | 500 |
| Independent Teams (All sports) | 200 | 200 | 200 | 600 |
| | | | | **8661** |

3. **The hours of lighting in spring versus the fall**

**How often would the lights be used in the spring?**

- In the spring, each field is illuminated approximately 75 hours during the spring season
- For SJMP, this would equate to 375 lighted hours for all 5 fields

**How often would the lights be used in the fall?**

- In the fall, each field is illuminated approximately 215 hours during the fall season
- For SJMP, this would equate to 1,075 lighted hours for all 5 fields

**Field Necessity-**

- There are **97** Loudoun County (PRCS managed) ball fields in the county
- There are **189** Loudoun County Public School Fields

- The county has a capital facility need of **259 fields** which means to meet current capital needs / standards for Loudoun residents the county is short 259 ball fields. This is split between **147** baseball/softball fields and **112** rectangular fields.

- There are currently 23 lighted ball fields currently being managed by PRCS that are Loudoun County owned. 2 are leased by PRCS , Mickey Gordon and Fireman's Field.

- There currently no county **owned** lighted fields being managed by PRCS for west of Leesburg.

- Purcellville's Fireman's Field is used by Loudoun Valley High School Baseball in the Spring (there is no field at the High School) and is also used by Upper Loudoun Youth Football League in the Fall. Mickey Gordon, which is near Middleburg, is owned by the Loudoun County School Board. Both of these fields are managed and leased by PRCS.

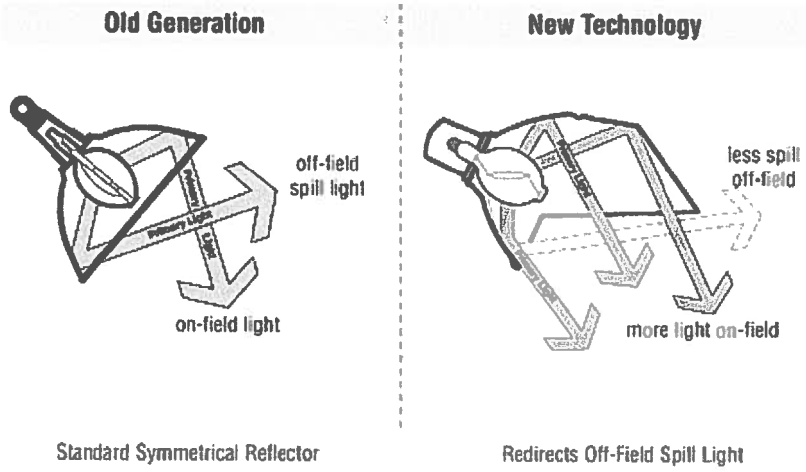
**Lighting-**

**Comments regarding MUSCO**

- A leader in developing sports-lighting technology — including solutions for permanent and temporary lighting, and sports facility management — Musco offers innovative systems, a comprehensive package of services and decades of experience.
- Amateur Softball Association, Babe Ruth League, Disney, England and Wales Cricket Board, Little League Baseball® and Softball, Major League Baseball, NASCAR and the NBA, Musco has played a key role in developing guidelines for safe, efficient sports facilities. Musco is a Major Partner with the National Recreation and Park Association (NRPA); provides the Official Sports-Lighting System for Little League Baseball® and Softball and was selected to light Disney's Wide World of Sports™ Complex — a state-of-the-art 200-acre complex with facilities for more than 30 sports — located in the greater Orlando, Florida area in the United States.
  Recipient of **Academy Award** for scientific and engineering achievement in film lighting. s well as Emmy Award by Academy of Television Arts and Sciences for lighting the NCAA football telecasts.
- 2005 Revolutionized sports lighting with the introduction of Light-Structure Green™ cutting energy costs in half, reducing spill light by 50%. (proposed lighting at Scott Jenkins)

Light·Structure GREEN™

- Keeps light on the field and away from neighboring properties (light spill)
- Restricting light source visibility to comfortable levels (glare)
- Maintaining the natural beauty of the night sky and stars (sky glow )



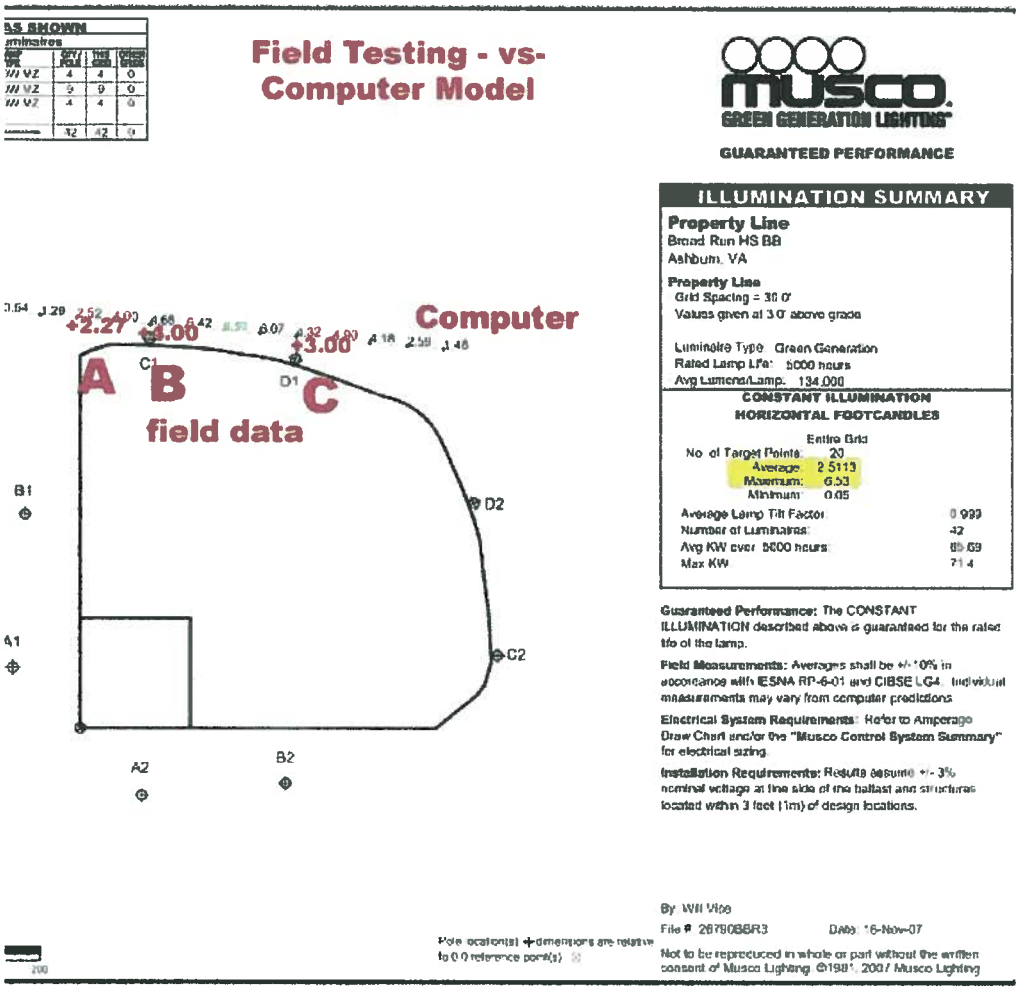

**Lighting Plan - Specific Accuracy of Projection Concerns-**

- Commissioner Austin recommended the applicant evaluate the accuracy of the computer model photometrics as compared to the actual field results of a similar lighting system (Broad Run High School)

- The field run comparison test was taken at the property line in locations that were pre-determined by the computer model for the new lighting at Broad Run High School.

- We took a several readings and determined that the computer model was accurate and, if anything, a bit conservative. The results are shown below

    - Point A computer model was 2.52 Footcandle (FC) while the field results were 2.27 FC.
    - Point B computer model was 4.68 FC and the field result was 4.00 FC.
    - Point C was 4.32 on the computer model and only 3.10FC in the field.




- The above findings conclude that the simulation is a conservative projection. The computer generated simulations are based on the fields in a wide open area with nothing blocking the lights in any direction. They are based on a perfectly flat grade. Any change in the grades or vegetation surrounding the fields or the greenhouse will help lower the simulation numbers.

- **The applicant also evaluated**, with light metering, the distances from an existing system with and without lights turned on to determine the ambient light vs the lighting with the ball field illuminated.

- Both field tests were done with hand held light meters.

- This specific meter is designed to work with a wide range of applications: for light technicians, for the control of light sources, street lights, lighting of work places, public buildings, sports facilities; for quality control and quality assurance in the manufacture of lamps and light sources; for light designers and

architects; for measurements in agriculture and horticulture. Both MAVALUX types allow measuring very high light intensities (brightest daylight, head lights) without any additional accessories. Especially the MAVOLUX 5032B having an initial sensitivity of 0.01 lx allows measuring extremely low light intensities, such as emergency lighting. Most important: The MAVOLUX 5032B is optimally suited for certification and official inspection procedures due to its high precision acc. to Class B. (from Gossen Website)

- The field run testing the footcandle readings distancing from the similar ball field lighting went as follows.
    - About 300' from the home plate of the ball field read .03 without lights and .06 with the lighting.
    - About 600' from the home plate of the ball field read .02 without lights and .04 with the lights turned on.
    - About 800' from the home plate of the ball field read .03 without lights (no clouds) and .03 with the lights on. This means that there is not a noticeable light increase over ambient light at the 800' mark from home plate. The closest greenhouse used for poinsettias is over **870'** from the proposed home plate location.

**Photosimulation Comparison using All Lighted Fields**

a) The light meter used to create the data comparison and computer simulation for this application would need to be off by **18%** for 0.01 footcandles to reach the nearest greenhouse used for poinsettia production.

b) The light meter used would need to be off by **67%** for 0.02 footcandles to reach the nearest greenhouse used for poinsettia production..

c) The light meter used would need to be off by **264%** for 0.09 footcandles, the minimum amount required to affect poinsettia production, to reach the nearest greenhouse used for poinsettia production.

**To put this in perspective, this would be the equivalent of driving 145MPH when your speedometer reads 55**

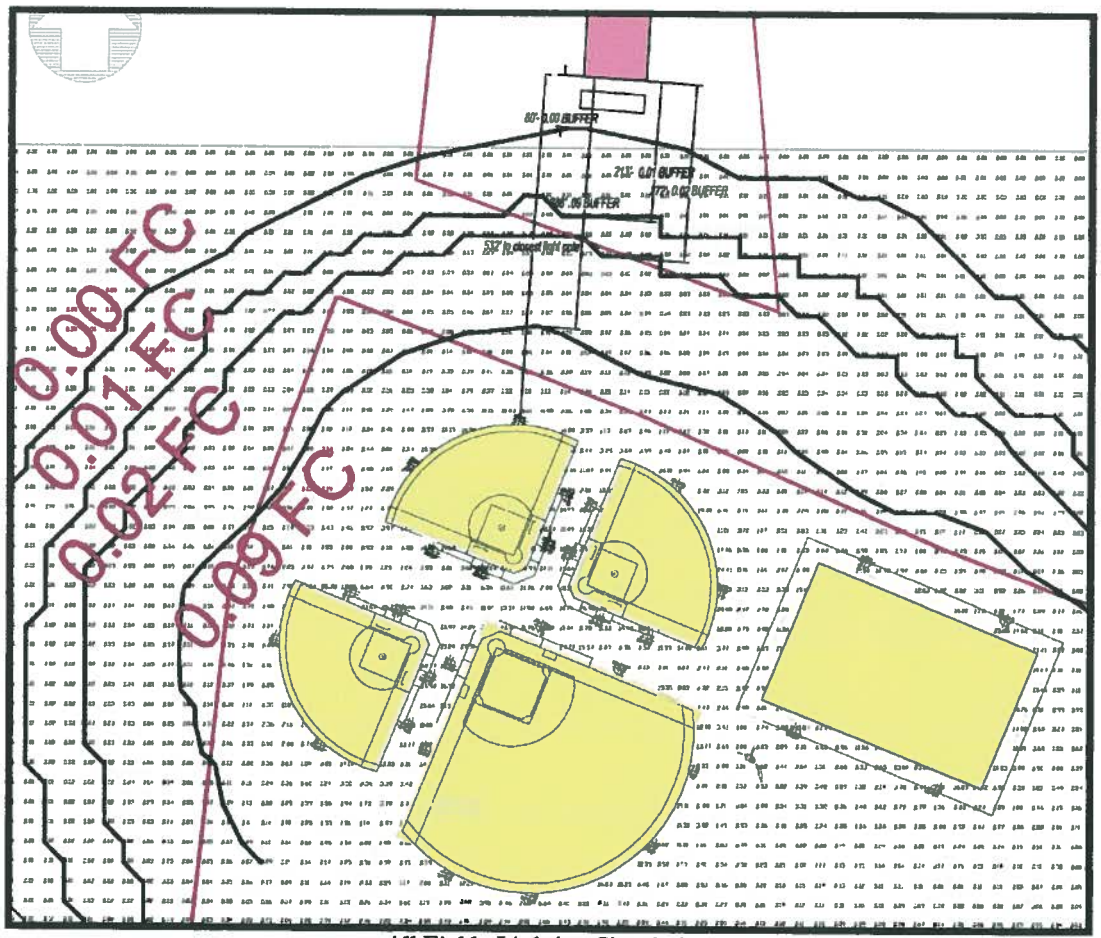
**All Lighted Field Footcandle Buffers are as follows**

0.00 Buffer is 80'

0.01 Buffer is 213'

0.02 Buffer is 272'

0.09 buffer is 386'




All Fields Lighting Simulation

**Using the Two Lighted Field Photometric Example:**

a) The light meter used to create the data comparison and computer simulation for this application would need to be off by **34%** for 0.01 footcandles to reach the nearest greenhouse used for poinsettia production.

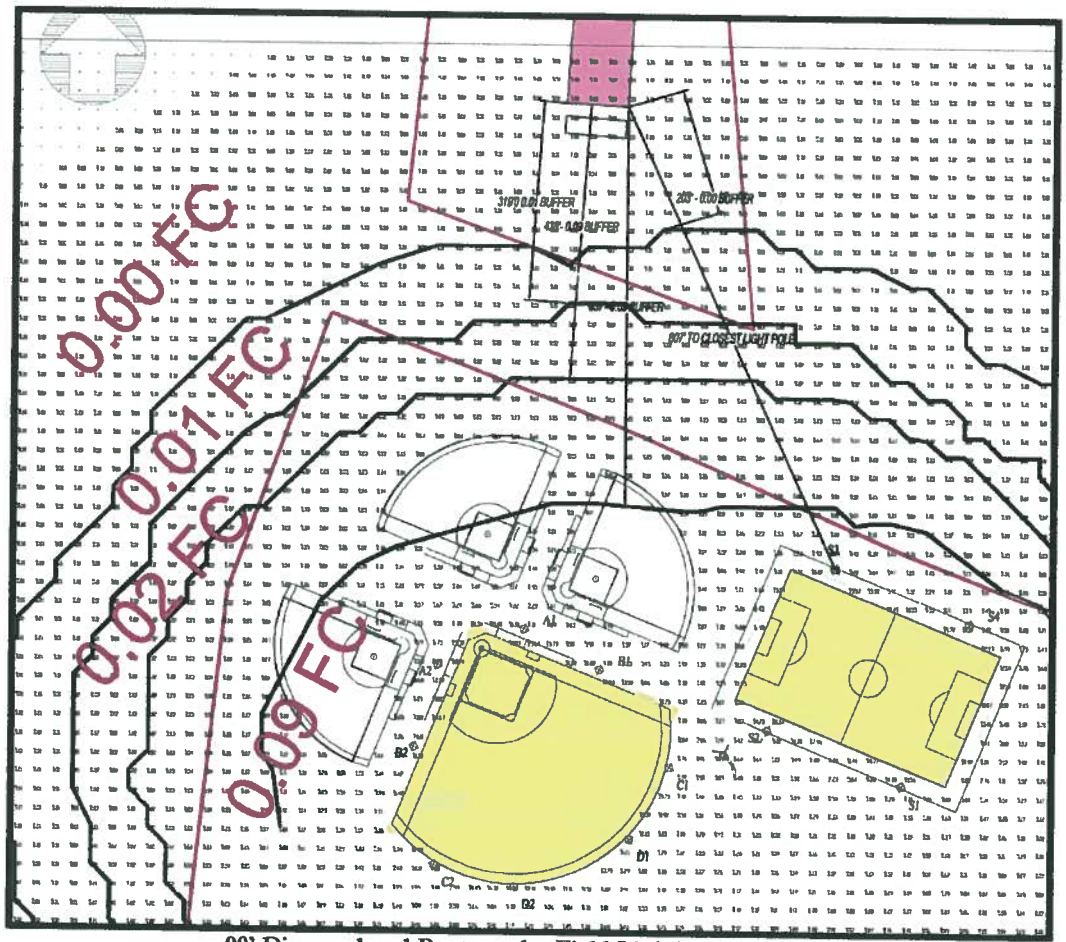
b) The light meter used would need to be off by **65%** for 0.02 footcandles to reach the nearest greenhouse used for poinsettia production..

c) The light meter used would need to be off by **375%** for 0.09 footcandles, the minimum amount required to affect poinsettia production [confirm], to reach the nearest greenhouse used for poinsettia production.

**To put this in perspective, this would be the equivalent of driving 206 MPH when your speedometer reads 55**

**Two Lighted Field Footcandle Buffers are as follows**

0.00 Buffer is 203', 0.01 Buffer is 319', 0.02 Buffer is 438', 0.09 buffer is 637'




90' Diamond and Rectangular Field Lighting Simulation

**The same Comparison using Single 90' Baseball Lighted Field**

a) The light meter used to create the data comparison and computer simulation for this application would need to be off by **37%** for 0.01 footcandles to reach the nearest greenhouse used for poinsettia production.

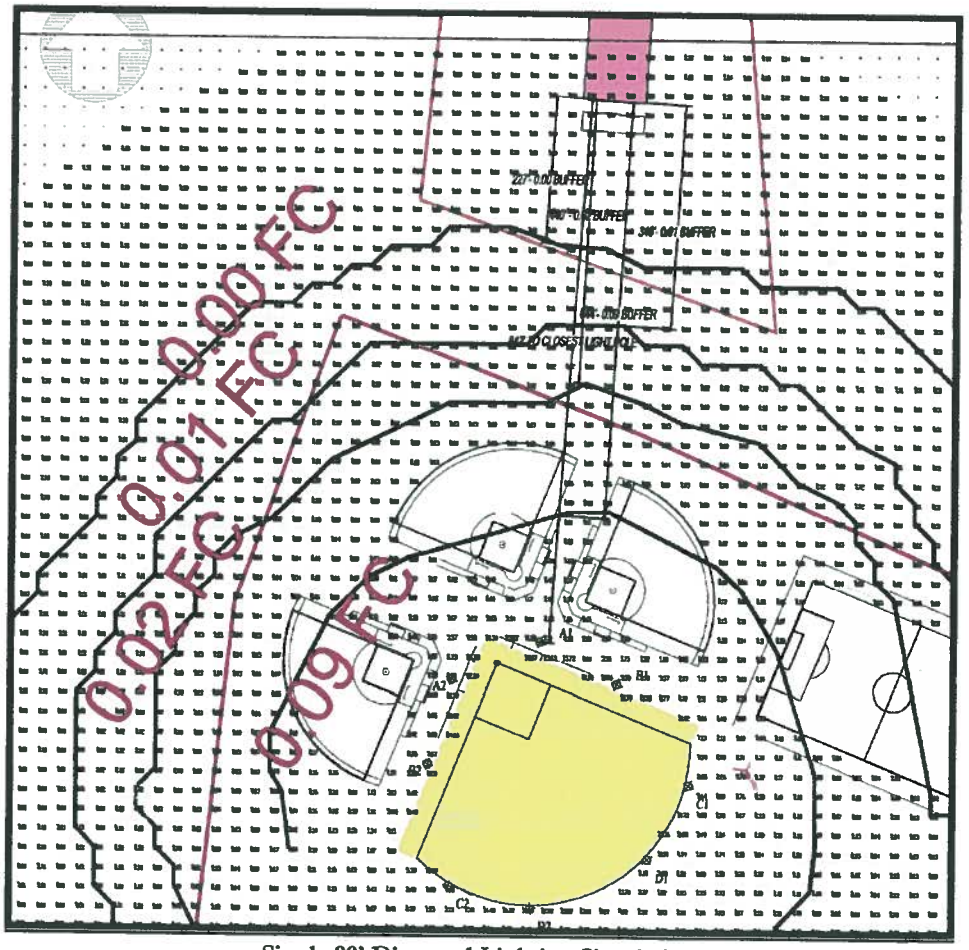
b) The light meter used would need to be off by **70%** for 0.02 footcandles to reach the nearest greenhouse used for poinsettia production..

c) The light meter used would need to be off by **325%** for 0.09 footcandles, the minimum amount required to affect poinsettia production [confirm], to reach the nearest greenhouse used for poinsettia production.

**To put this in perspective, this would be the equivalent of driving 178 MPH when your speedometer reads 55**

**Single 90' Baseball Lighted Field Footcandle Buffers are as follows**

0.00 Buffer is 227', 0.01 Buffer is 346', 0.02 Buffer is 440', 0.09 buffer is 644'




Single 90' Diamond Lighting Simulation

# Loudoun County, Virginia

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January 19, 2010


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JAN 19 2010
LOUDOUN COUNTY
DEPARTMENT OF PLANNING


Jane McCarter, Project Planner
Department of Planning
1 Harrison Street, SE.
P.O. Box 7000
Leesburg, VA 20177-7000

Subject: SPEX 2009-0004, SPEX 2009-0015, CMPT 2009-0003
Scott Jenkins Memorial Park
Transportation and Land Use Committee

Dear Ms. McCarter:

Please find the attached summary of additional information regarding Scott Jenkins Memorial Park, SPEX 2009-0004, SPEX 2009-0015. The supplemental information is provided by our consultant engineer, PHR&A for review by the Transportation and Land Use Committee.

This information summarizes the performance standards and technologies that MUSCO Lighting provides towards answering the adjoining neighbors concerns regarding the lighting of the fields at the park. Also, the Department of Parks, Recreation and Community Services has provided supplemental information concerning the programmatic need for the lighted fields. Having been through numerous public meetings, input sessions, planning commission and board input it has become evident that the focus is centered on the lights and their potential impact to the Elmore's Nursery and future poinsettia crops. As the applicant, it has been our position that the installation of the ballfield lights will have zero impact on the quality of poinsettias produced by the Elmore's. By working with our engineers and MUSCO, proven studies and proposed lighting photometric plans have shown that no light spillage will ever reach the Elmore's production greenhouses. Our office is confident in both our engineer and MUSCO that these models can be installed and operated per those projections. We have provided several operating options as alternatives to insure we achieve such measures so no light from the site would infiltrate the greenhouses. These options are fair to all parties.

In an effort to simplify any conditions set forward as well as measureable performance standards with our application we offer the following:

1. There will be no measureable light spillage from any ballfield lighting inside the production greenhouses. ( i.e. no increase in measurable light above ambient)
2. Upon installation of the first set of lights and any subsequent light installations, a minimum of 30 tests shall be conducted during various weather scenarios to ensure no measureable increases above ambient light from inside the greenhouses. Successful testing shall be performed between January and July in order to permit year round ballfield lighting. If at any time measureable light is detected within the greenhouses,

lights will not be permitted between August and January until successful corrective actions are taken to bring the lights into compliance.

3. If greenhouse access is not provided or allowed by the property owners necessary to perform testing then alternate testing would be performed at the nearest property line of PIN #346-45-2753 to ensure that light spillage above ambient light does not exceed 0.09 foot candles.

It is our opinion that these are the clearest and simplest conditions to achieve the request of the Elmore's....that no artificial light reach their poinsettias. If it can be proven that the light will never reach the greenhouses then their concerns and fears of accidental lighting would be mitigated. Obviously, they have questions and concerns regarding the studies and technology to verify the lighting impacts to their long term viability for poinsettia production and we certainly understand their concerns. That said, we are confident that we can earn their trust once they see the first set of lights operational in the Spring season and can begin measurement of the actual associated spillage. Knowing it will be some time before funding becomes available for full lighting of all fields, the installation the first set of lights, which are the farthest from the greenhouses, will provide the subsequent performance standards for the remaining lights as they come on line.

In summary, we are confident in the data being presented and would agree to not light the fields from August thru December unless testing shows no impact. Should you have any questions or need additional information please do not hesitate to contact me. Thank you for your time and consideration into our request.

Sincerely,

Matthew Kitchen
703-771-5323
matthew.kitchen@loudoun.gov

Cc: Transportation and Land Use Committee